a fluid passage provided in said heater base below said heater,

wherein said heater base is cooled by causing a fluid whose temperature is lower than a temperature of said heater base to be supplied through said fluid passage.

2. (Amended) The ceramic heater system according to claim 1, wherein said fluid passage has a plurality of concentric circular passage portions and a plurality of penetration passage portions connecting the circular portions passage.

4. (Amended) The ceramic heater system according to claim 2, wherein said fluid passage has a fluid inlet formed in a central portion of a lower surface of said heater base, and fluid outlets formed in outer circumference portions of the lower surface of said heater base.

6. (Amended) The ceramic heater system according to claim 5, wherein said mixed gas contains Ar and He.

7. (Amended) The ceramic heater system according to claim 1, wherein a ratio of He flow rate to Ar flow rate is 20% or more.

11. (Amended) The ceramic heater system according to ~~claim 10, wherein said~~ heater has glassy boron nitride coated on an outer surface of graphite or glassy carbon of which said heater is formed.

12. (Amended) The ceramic heater system according to claim 1, further comprising:

an electrode buried in said heater base and located between the heater and the mounting surface; and

power supply means for applying a DC voltage to said electrode,

wherein, when the voltage is applied to the electrode, an electrostatic chuck is formed, the electrostatic chuck being for electrostatically attracting or repulsing the object mounted on the heater base, and the electrostatic chuck and the heater forming a one-body structure.

17. (Amended) The ceramic heater system according to claim 1, wherein said fluid passage has a fluid inlet formed in a central portion of a lower surface of said heater base, and fluid outlets formed through circumferential side walls of said heater base.

18. (Amended) A ceramic heater system comprising:

an upper heater base integrally formed of a ceramic material; and

a lower heater base formed of a ceramic material, the upper heater base and the lower heater base forming a one-body heater base, with a lower surface of the upper heater base being in tight contact with the lower heater base,

the heater base including:

a mounting surface which is formed as an upper surface of the heater base and on which an object is mounted,

a heater, buried in said upper heater base, for heating the object,

a fluid passage provided in the lower surface of the heater base and formed as a groove through which a fluid is supplied toward the mounting surface,

wherein said heater base is cooled by causing a fluid whose temperature is lower than a temperature of the heater base to be supplied through the fluid passage.

19. (Amended) A substrate processing apparatus comprising:

a chamber whose interior can be kept in a vacuum state by an exhaust system;

a ceramic heater system which is provided in the chamber and which heats an object; and

processing means for performing a predetermined treatment on said substrate in said chamber,

said ceramic heater system including,

a heater base integrally formed of a ceramic material,

a mounting surface formed on a top surface of a heater base,

a heater, buried in said heater base, for heating said object, and

a fluid passage provided in said heater base and located below said heater,

wherein said heater base is cooled by letting a fluid whose temperature is lower than a temperature of said heater base flow in said fluid passage.

21. (Amended) The substrate processing apparatus according to claim 20, further comprising:

a high-frequency power supply, connected to said shower head, for electrically, isolating said shower head and applying high-frequency power to said shower head; and

a lower electrode embedded in the heater base and located between an upper surface of the heater base and the heater,

wherein plasma is generated by applying the high-frequency power to the shower head in the chamber which is in a gaseous atmosphere supplied with the process gas from the shower head, and a film is formed on the object by a reaction of the process gas with the plasma.

22. (Amended) The substrate processing apparatus according to claim 19, wherein said processing means includes:

a gas feeding mechanism for feeding an etching gas,

an electrically isolated shower head, provided in said chamber at a ceiling thereof, for introducing said process gas from said gas feeding mechanism,

a high-frequency power supply, connected to said shower head, for applying high-frequency power to said shower head, and

a lower electrode embedded in the heater base and located between the heater base and the heater,

wherein, when the high-frequency power is applied to the shower head and/or the lower electrode in a chamber atmosphere into which the etching gas is supplied from the shower head, plasma is generated and a surface of the object is etched by a reaction of the etching gas.

Please add new Claims 23-50 as follows:

23. (New) The ceramic heater system according to claim 1, wherein the fluid passage has a fluid inlet formed in a central portion of a lower surface of the heater base, and fluid outlets formed in outer circumference portions of the lower surface of the heater base.

24. (New) The ceramic heater system according to claim 1, wherein the fluid passage has a fluid inlet and a fluid outlet formed in a lower surface of the heater base.

25. (New) The ceramic heater system according to claim 1, wherein the fluid supplied through the fluid passage has a temperature in the range of 10 to 800°C.

26. (New) The ceramic heater system according to claim 1, wherein the ceramic material includes at least one of a nitride-based metallic material having a high melting point and an oxide-based metallic material having a high melting point.

27. (New) The ceramic heater system according to claim 26, wherein the nitride-based metallic material is AlN.

28. (New) The ceramic heater system according to claim 18, wherein the fluid passage has a plurality of concentric circular passage portions and a plurality of penetration passage portions connecting the circular passage portions

29. (New) The ceramic heater system according to claim 18, wherein the fluid passage has a fluid inlet and a fluid outlet formed in a lower surface of the heater base.

30. (New) The ceramic heater system according to clam 29, wherein the fluid passage has a fluid inlet formed in a central portion of a lower surface of the heater base, and fluid outlets formed in outer circumference portions of the lower surface of the heater base.

31. (New) The ceramic heater system according to claim 18, wherein the fluid supplied through the fluid passage is a gas selected from the group consisting of Ar, He, Ne and N_2, or a mixture gas of gases selected from the group.

32. (New) The ceramic heater system according to claim 31, wherein the mixture gas contains Ar and He.

33. (New) The ceramic heater system according to claim 32, wherein the mixture gas is supplied such that the flow rate of the He to the Ar is not less than 20%.

34. (New) The ceramic heater system according to claim 18, wherein the fluid has a temperature within the range of 150 to 500°C.

A7 Cont

35. (New) The ceramic heater system according to claim 18, wherein the fluid has a temperature within the range of -10 to 800°C.

36. (New) The ceramic heater system according to claim 18, wherein the heater is a winding which is made of a high-melting point metallic material and which has a pattern that enables an internal region of the heat base to be uniformly heated.

37. (New) The ceramic heater system according to claim 18, wherein the heater is made of graphite or vitreous carbon and has a pattern that enables an internal region of the heater base to be uniformly heated

38. (New) The ceramic heater system according to clam 37, wherein the heater is made by coating vitreous boron nitride over outer surfaces of graphite or glass carbon.

39. (New) The ceramic heater system according to claim 18, further comprising:

an electrode buried in the heater base and located between the heater and the mounting surface, and

power supply means for applying a voltage to the electrode,

wherein, when the voltage is applied to the electrode in an ON state, an electrostatic chuck is formed, the electrostatic chuck being for electrostatically attracting or repulsing the object mounted on the heater base, and when no voltage is applied to the electrode in an OFF state, no electrostatic chuck is formed, the electrostatic chuck and the heater forming a one-body structure.

40. (New) The ceramic heater system according to claim 18, further comprising:

a fluid supply source configured to output a fluid to be supplied through the fluid passage;

A7 cont

a temperature control unit configured to control the fluid from the fluid supply source such that the fluid has a temperature within a range of -10 to 800°C, and to supply the fluid into the fluid passage; and

a heat exchanger configured to deprive the fluid of heat provided by the heater base,

wherein the fluid is made to circulate via the fluid supply source, the temperature control unit, the fluid passage and the heat exchanger, while being simultaneously controlled in temperature.

41. (New) The ceramic heater system according to claim 18, wherein the fluid passage has an increased internal surface area, thereby providing an improved heating/cooling efficiency.

42. (New) The ceramic heater system according to claim 40, wherein the fluid passage has a heat-radiating fin located on a heater side and has a roughened inner surface located on the heater side.

43. (New) The ceramic heater system according to claim 12, wherein the power supply means includes one of a DC current supply and a high-frequency power supply.

44. (New) The ceramic heater system according to claim 18, wherein the upper heater base and the lower heater base are coupled together by use of a ceramic adhesive or a screw.

45. (New) A ceramic heater system comprising:

a heater base integrally formed of a ceramic material,

the heater base including:

A7 Cont

a mounting surface which is formed as an upper surface of the heater base and on which an object is mounted,

a heater, buried in the heater base, for heating the object,

a fluid passage provided in the heater base and located below the heater,

an electrode buried in the heater base and located between the heater and the mounting surface, and

power supply means for applying a voltage to the electrode,

wherein the heater base is cooled by causing a fluid whose temperature is lower than a temperature of the heater base to be supplied through the fluid passage, and

when the voltage is applied to the electrode in an ON state, an electrostatic chuck is formed, the electrostatic chuck being for electrostatically attracting or repulsing the object placed on the heater base, and when no voltage is applied to the electrode in an OFF state, no

electrostatic chuck is formed, the electrostatic chuck and the heater forming a one-body structure.

46. (New) The ceramic heater system according to claim 45, wherein the heater is a winding which is made of a high-melting point metallic material and which has a pattern that enables an internal region of the heat base to be uniformly heated.

47. (New) The ceramic heater system according to claim 45, wherein the heater is made of graphite or vitreous carbon and has a pattern that enables an internal region of the heater base to be uniformly heated.

48. (New) The ceramic heater system according to claim 47, wherein the heater is made by coating glassy boron nitride over outer surfaces of graphite or glassy carbon.

A7 Cont

49. (New) The ceramic heater system according to clam 45, wherein the fluid passage has a fluid inlet and a fluid outlet formed in a lower surface of the heater base.

50. (New) The ceramic heater system according to claim 49, wherein the fluid passage has a fluid inlet formed in a central portion of a lower surface of the heater base, and fluid outlets formed in outer circumference portions of the lower surface of the heater base.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1, 2, 4-13 and 17-50 are pending in the present application. Claims 3 and 14-16 have been cancelled, Claims 1, 2, 4, 6, 7, 11, 12, 17-19, 21 and 22 have been amended and Claims 23-50 have been added by the present amendment.

In the outstanding Office Action, Claims 3 and 16 were rejected under 35 U.S.C. § 112, second paragraph; Claims 1, 10, 12 and 18 were rejected under 35 U.S.C. § 102(b) as